

Math 2010: Linear Algebra Syllabus

Main Bio Research Teaching Links Calendar

David Shea Vela-Vick email: shea@math office: Rm 609 office phone: 212.854.6240 office hours: Mon: 11:00 - 12:00 Fri: 8:45 - 9:45 (and by appointment) where: Math 417 when: MW 1:10 - 2:25

Homework, Exams, and Grades:

Homework Policy: Homework is to be turned in promptly **by 4:00 PM** on Wednesdays. You should turn in homework to your section's mailbox outside of Math 410. Late or improperly submitted homework will never be accepted. If you know in advance you will be unable to turn in homework when it's due, you should plan to turn it in ahead of time. Religious holidays are not an excuse for late homework! If you know that there is an impending religious holiday, it is your responsibility to make arrangements to submit homework early. Since homework is only due once a week, this should be manageable. I will drop your lowest homework score to allow for missed assignments or for assignments that pose special difficulty. Homework must be neat, well-organized, and legible. Ragged margins, multi-column and otherwise over-dense formats, and unstapled sheets are unacceptable. If your handwriting is difficult to read, type your homework. If you tend to scratch out or erase incorrect parts of solutions, do a rough draft or type your homework. Write in paragraphs, sentences, and English words. Use punctuation and conjunctions to indicate your flow of thought rather than arrows or telepathy. Shoot for lucidity rather than terseness.

Exam Policy: No makeups will be given. Calculators and/or notes are not permitted on any examination.

Final Course Grades: Your grade will be determined by your performance on the various assignments and exams throughout the term. Specifically, your final grade will be determined as follows: 1. Homework 20% 2. Midterms 20% (each) 3. Final Exam 40% Exceptional class participation may be taken into account in "borderline cases".

Academic Dishonesty: Cheating in exams is unacceptable. Any cheating during midterms or finals will result in you failing the exam and the matter being reported to your dean. Copying your written work from somebody else or from any other source is considered cheating and will be dealt with severely. Permitting someone else to copy your work is also considered cheating. You can talk to your friends about the homework, but remember that the work you hand in must be your own. The best way to avoid any suspicion of copying is to write

out your homework solutions on your own, not whilst working with a friend.

Disability Support: Students who may need accommodations because of a documented disability should meet with me privately within the first week of classes. In addition, students with disabilities should also contact the Office of Disability Services.

Syllabus:

The text for the course will be **Linear Algebra With Applications (4E)**, by **Otto Bretscher**.

Week Beginning	Topics And Sections	Homework Due
9/05/11	Review and introduction to matrices, vectors and Gauss-Jordan elimination (1.1,1.2)	Read Appendix A
9/12/11	Solving linear systems, matrix algebra (1.3); Introduction to linear transformations (2.1,2.2)	1.1: 12,18,19,34,40 1.2: 4,10,18,24,25,33,34,36,41
9/19/11	More linear transformations (2.2,2.3,2.4)	1.3: 4,6,30,44 Ch 1: 4,10 2.1: 6,8,14,24-30,34,44
9/26/11	Subspaces of \mathbb{R}^n (3.1,3.2,3.3)	2.2: 6,10,26,37 2.3: 4,20,30,32,46 2.4: 4,20,28,34,40,68,70
10/03/11	More subspaces of \mathbb{R}^n (3.4); Midterm I (10/05/11)	3.1: 6,14,18,34,38 3.2: 2,6,24,28,42,50 3.3: 22,30,36,39
10/10/11	Linear spaces (4.1,4.2)	3.4: 2,8,18,20,28,38
10/17/11	More linear spaces (4.3); Orthogonality (5.1)	3 (p.151): 11,16 4.1: 2,6,8,18,44 4.2: 3,22,24,30,56
10/24/11	More orthogonality (5.2,5.3)	4.3: 2,6,22,36,48

		4 (pp. 184-185): 6,30,36 5.1: 8,10,26
10/31/11	Least squares (5.4,5.5); Review	5.2: 2,4,18,24,34 5.3: 4,8,16,20,22,32,36
11/07/11	Midterm II (11/09/11)	5.4: 2,4,8,18,30 5.5: 4,9,10,20,22
11/14/11	Determinants (6.1,6.2,6.3)	None!
11/21/11	Eigenvalues and eigenvectors (7.1,7.2,7.3)	Due Nov. 28 6.1: 4,8,18 6.2: 2,6,16,38,41 6.3: 2,9,10,25 6 (pp.292-293): 2,8,25
11/28/11	More eigenvalues and eigenvectors (7.4,7.5); Symmetric matrices (8.1)	Due Dec. 5 7.1: 2,6,15,17 7.2: 16,22,35 7.3: 6,10,12,18,20,24,32
12/05/11	More symmetric matrices and quadratic forms (8.2,8.3)	Due Dec. 12 7.4: 4,16,28,32,47 7.5: 2,6,32 8.1: 2,6,10,15,24,37
12/12/11	Review	Do NOT submit 8.2: 2,4,8,16,18,58,60 8.3: 5,12,24,28,34